

***CLOUD LIFE CYCLE OBSERVED DURING THE 2009 CLOUD TOMOGRAPHY
FIELD CAMPAIGN***

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For presentation at
the First Science Team Meeting of
the Atmospheric System Research (ASR) Program,
Bethesda, MD
March 15-19, 2010

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ABSTRACT

The major objective of the cloud tomography field campaign, conducted during the summer of 2009, is to demonstrate the feasibility of the cloud tomography method for long-term 3D observation of cloud and water vapor. During the two-month experiment, five scanning microwave radiometers were deployed along an eight-kilometer line and programmed to continuously scan the upper hemisphere. The quality of the radiometric data is evaluated by examining radiation closure during clear-sky conditions. The calculated brightness temperatures agree with the observed ones within 1.0°K when concurrent radiosonde measurements are used. Using a constrained cloud tomography retrieval algorithm, we are able to obtain a 2D snapshot of both the cloud liquid and the water vapor fields every two minutes. We will present the cloud and water vapor retrieval results for a variety of sky cover conditions. The high-resolution tomographic retrievals provide a unique opportunity for investigating the life cycle of warm clouds, the diurnal evolution of water vapor fields, and the interaction between them.

This poster will be displayed at ASR Science Team Meeting.

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